Information for File # MVP-2005-1394-JKA

Applicant: Minnesota Department of Transportation, District 7

Corps Contact: Jon K. Ahlness

Address: 190 5th Street East

St. Paul, MN 55101-1638

E-Mail: jon.k.Ahlness@mvp02.usace.army.mil

Phone: 651-290-5381

Primary County: Sibley

Section: 31

Township: 114N

Range: 24W

Information Complete On: March 14, 2005

Posting Expires On: April 18, 2005

Authorization Type: MN-LOP-B

Project

PROJECT DESCRIPTION AND PURPOSE: The applicant has applied for a Department of the Army permit to discharge fill material into Section 404 jurisdictional wetlands and a Section 10 jurisdictional water of the U.S. to facilitate replacement of the Minnesota Trunk Highway 25 bridge, built in 1934, over the Minnesota River about 0.75 mile north of Belle Plaine, Minnesota. New bridge piers would be constructed, the elevation of the north end of the new bridge would be raised seven feet and the highway grade north of the bridge would have its shoulder slope reduced. A water quality treatment pond would be built in the northeast corner of the bridge site, and a portion of a future trail would be constructed under the north end of the new bridge. The existing bridge piers would be removed, including footings. The pilings would be cut off, and excavation of the river bottom would be conducted around the old piers. Riprap would be placed along both banks of the Minnesota River, both upstream and downstream of the bridge and under the bridge. In addition, riprap would be placed around the new bridge piers and in the area of the old bridge piers. The purpose of the bridge replacement is to provide a safer and more reliable transportation route for people, goods, and services, and to reduce the bridge maintenance costs. The purpose of the riprap is for bank stabilization and erosion control.

NAME, AREA AND TYPES OF WATERS (INCLUDING WETLANDS) SUBJECT TO LOSS: The applicant has proposed to discharge fill material into a total of 27,906 square feet (0.64 acre) of sedge meadow/shrub-carr wetlands (Type 2/6 wetlands). The fill would be discharged at nine locations as shown on attached Drawings MVP-2005-1394-JKA Page 4 of 5 and 5 of 5. The impacted wetlands are all adjacent to the Minnesota River. The applicant has also proposed to place riprap along approximately 380 linear feet of riverbank on the south side of the river and along approximately 460 linear feet of riverbank on the north side of the river. In addition, riprap would be placed in approximately 11,170 square feet (0.26 acre) of river bottom around the new pier and old pier area under the south side of the bridge and riprap would be placed in approximately 10,160 square feet (0.23 acre) of riverbottom around the new pier and

old pier area under the north side of the bridge. Riprap locations are shown on attached Drawing MVP-2005-1394 Page 3 of 5. Approximately 17,600 square feet (0.40 acre) of river bottom would be excavated in the area of the old pier on the south side of the river, and approximately 15,950 square feet (0.37 acre) of river bottom would be excavated in the area of the old pier on the north side of the river. The excavations would be conducted before the placement of the new riprap. To facilitate removal of the two old bridge piers, two temporary access roads would be constructed into the river. The applicant has proposed to discharge fill into 6,250 square feet (0.14 acre) of the river to construct the temporary access road to the existing south bridge pier and into 8,200 square feet (0.19 acre) of the river to construct the temporary access road to the existing north bridge pier. The fill for the two temporary access roads would be completely removed at the completion of the project.

ALTERNATIVES CONSIDERED: In addition to the Proposed alternative, the applicant considered a No Build alternative and a Bridge Rehabilitation alternative. The No Build alternative would avoid all impacts from the discharge of fill material into waters of the U.S. However, the purpose of the project would not be achieved, and it would require increased bridge maintenance, more frequent inspections, and occasional bridge closures. The Bridge Rehabilitation alternative would avoid all impacts from the discharge of fill material into waters of the U.S. However, the purpose of the project would not be achieved. Rehabilitation would include re-decking, painting of steel members, patching of piers and removing pack rust on the truss and beams. It would be difficult to replace material, including vertical pieces of concrete and section loss on steel members where accessibility is an issue. While some patching could fill-in the missing portions, that action would not necessarily decrease the need for increased maintenance, more frequent inspections, and the potential to occasionally close the bridge.

COMPENSATORY MITIGATION: To replace/mitigate for the 27,906 square feet (0.64 acre) of wetland fill, the applicant has proposed to purchase 55,812 square feet (1.28 acres) of wetland credits from a Corps approved wetland mitigation bank in Sibley County, Minnesota.

Drawings See attached, below.

MNP-2005-1374-JKA Page 1 of 5

PLOTTED/REVISED: 13-JAN-2005 07:43

DISTRICT #: 7 - Mankato/Windom
IPLOT NAME: d720908_tsh
PATH & FILENAME: S:\Pr\Nh025\7209\08\design\plan\d720908_tsh.dgn

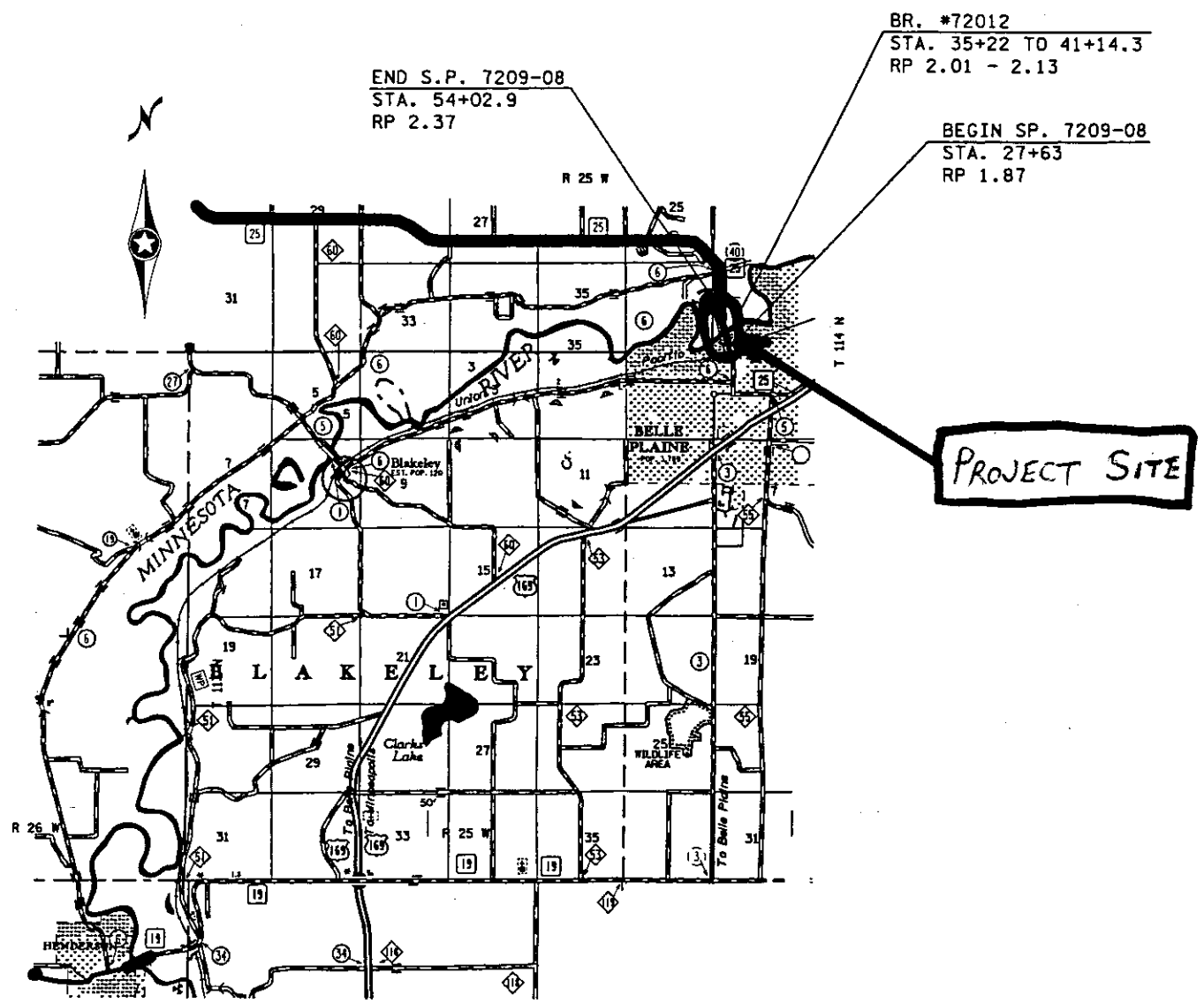
MINNESOTA DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLAN FOR GRADING, SURFACING & REPLACEMENT OF BRIDGE #5260 WITH BRIDGE #72012

LOCATED ON T.H. 25 AT BELLE PLAINE FROM 1,056' SOUTH TO 1,584' NORTH OF THE MINNESOTA RIVER

STATE PROJ. NO. 7209-08

GROSS LENGTH	FEET 2.62	MILES
BRIDGES-LENGTH	FEET	MILES
EXCEPTIONS-LENGTH	FEET	MILES
NET LENGTH	2510.00 FEET	0.057 MILES
REF. POINT 1.87	TO REF. POINT 2.37	



SCALES

PLAN		
PROFILE	HORIZ.	VERT.
INDEX MAP	5,280	
GENERAL LAYOUT		

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY

DESIGN DESIGNATION

Design ESALS	=		
ADT (Current Year) 2005	= 5300	Design Speed 60 MPH	
ADT (Future Year) 2025	= 8000	Based on STOPPING Sight Distance	
DHV (Design Hr. Vol.)	=	Height of eye 3.5' Height of object 2.0	
D (Directional Distr.)	= %	Design Speed not achieved at:	
T (Heavy Commercial) 2005	= 470 %	STA. TO STA. MPH	
		STA. TO STA. MPH	

PROJECT LOCATION
COUNTY : SCOTT, SIBLEY
DISTRICT : D-7

FOR PLANS AND UTILITIES SYMBOLS SEE TECHNICAL MANUAL

STATE PROJ. NO.	CHARGE IDENTIFIER
7209-08	

FED. PROJ. NO. STATE FUNDS

GOVERNING SPECIFICATIONS

THE 2000 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION", SHALL GOVERN.

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2-5	PLAN SHEETS
5-6	ESTIMATED QUANTITIES AND NOTES
7	CONSTRUCTION NOTES & STANDARD PLATES
8-14	TABULATION SHEETS
15-19	TYPICAL SECTIONS
20-34	DETAIL SHEETS
35	SUPERELEVATION SHEET
36-53	STANDARD PLAN SHEETS
54-64	TRAFFIC CONTROL SHEETS
65-68	EROSION CONTROL SHEETS
69-70	PROPOSED CONTOUR SHEETS
71-73	PROFILE SHEETS
74-89	CROSS SECTION SHEETS

THIS PLAN CONTAINS ____ SHEETS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: ROLIN SINN LICENSE # 19888

DATE: SIGNATURE:

DESIGN SQUAD J. GREENE LICENSED PROFESSIONAL ENGR.

RECOMMENDED FOR APPROVAL ____ 20____
DISTRICT TRANSPORTATION ENGINEER

RECOMMENDED FOR APPROVAL ____ 20____
DISTRICT MATERIALS ENGINEER

RECOMMENDED FOR APPROVAL ____ 20____
DISTRICT WATER RESOURCES/HYDRAULICS ENGINEER

RECOMMENDED FOR APPROVAL ____ 20____
DISTRICT TRAFFIC ENGINEER

RECOMMENDED FOR APPROVAL ____ 20____
STATE PRE-LETTING ENGINEER

OFFICE OF LAND MANAGEMENT APPROVAL ____ 20____
DIRECTOR, LAND MANAGEMENT

APPROVED ____ 20____
STATE DESIGN ENGINEER

I HEREBY CERTIFY THAT THE FINAL FIELD REVISIONS, IF ANY, WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: LICENSE #

DATE: SIGNATURE:

STATE PROJ. NO. 7209-08 (TH 25 = 25) SHEET NO. 1 OF 89 SHEETS

MNP-2005-1374-JKR Page 245

NOTES:

A LONG CENTER SPAN WAS USED DUE TO RECURRING DEBRIS PROBLEMS AT EXISTING PIERS.

NUMBER AND SPACING OF BEAMS IS APPROXIMATE ONLY AND WILL BE SET IN FINAL DESIGN.

ABUTMENT EXPOSURE SET AT APPROXIMATELY 6'-0".

TRAFFIC TO BE DETOURED DURING CONSTRUCTION.

EXTEND RIPRAP TO EL. 731.9.

INPLACE RIPRAP AROUND PIERS IS 4'-6' IN DIAMETER.

BENCHES UNDER BRIDGE TO PROVIDE CRANE ACCESS FOR MAINTENANCE.

HYDRAULICS HAS DETERMINED THAT DECK DRAINS ARE NOT REQUIRED.

PILING WILL TERMINATE ABOVE CONFINING LAYER FOR ARTESIAN CONDITION, APPROXIMATELY EL. 650. THIS WILL MAKE THE BRIDGE SCOUR CRITICAL AS THE PILING TERMINATE ABOVE THE PREDICTED SCOUR ELEVATION. EXTENSIVE RIPRAP AND A SCOUR MONITORING PLAN IS REQUIRED TO INSURE THE SAFETY OF THE STRUCTURE.

SUGGESTED TOP OF COFFERDAM EL. 706.5 - 705.0.

HAUL ROAD SET AT ELEVATION 706.0 TO MEET DNR REQUIREMENTS.

PROVIDE DETAILS AND MEASURES TO REDUCE STAINING OF THE PIERS AND ABUTMENTS FROM STEEL, ESPECIALLY PRIOR TO DECK PLACEMENT.

CHECK UPLIFT DURING SLAB POUR AND PROVIDE COUNTERWEIGHTS IF NEEDED.

DESIGN DATA

2004 (AND CURRENT INTERIM) AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

LOAD AND RESISTANCE FACTOR DESIGN METHOD

DESIGN LOADING HL93 LIVE LOAD

DEAD LOAD INCLUDES 20 PSF ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS

MAXIMUM ALLOWABLE DESIGN STRESSES:
REINFORCED CONCRETE:
f'c = 4000 PSI n = 8
fy = 60000 PSI REINFORCEMENT
STRUCTURAL STEEL:
fy = 50000 PSI SPEC 3309
fy = 70000 PSI SPEC 3317 (HIGH PERFORMANCE)

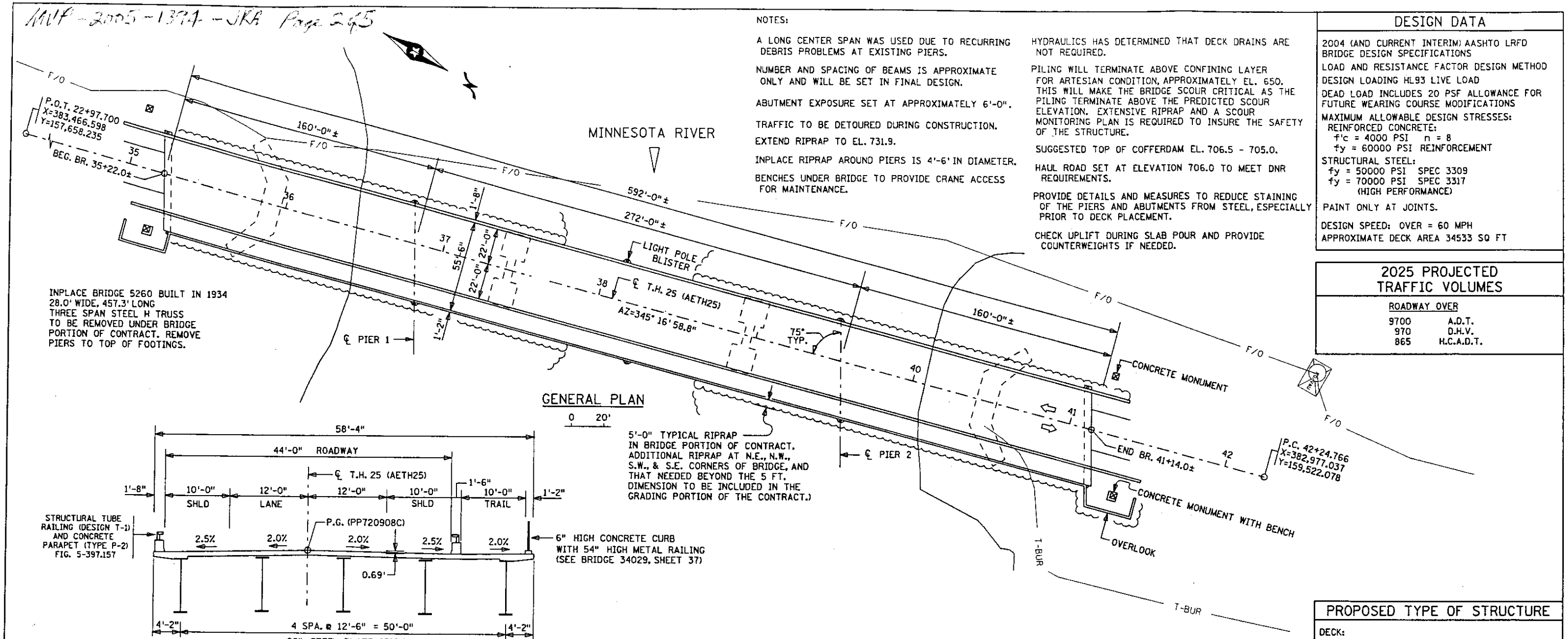
PAINT ONLY AT JOINTS.

DESIGN SPEED: OVER = 60 MPH

APPROXIMATE DECK AREA 34533 SQ FT

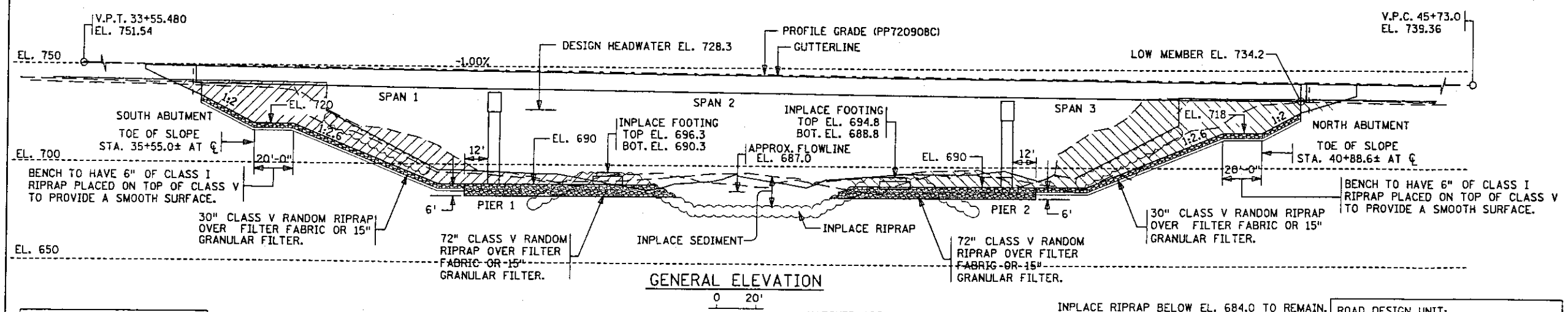
2025 PROJECTED TRAFFIC VOLUMES

ROADWAY OVER	
9700	A.D.T.
970	D.H.V.
865	H.C.A.D.T.



GENERAL PLAN
0 20'

PROFILE OF FINISHED BRIDGE DECK
0 5'



GENERAL ELEVATION
0 20'

PROPOSED TYPE OF STRUCTURE

DECK:
96" STEEL PLATE GIRDERS
CONTINUOUS SPANS
SEPARATE CONCRETE OVERLAY ON ROADWAY
ALL BARS EPOXY COATED

SUBSTRUCTURE:
PARAPET TYPE ABUTMENTS SUPPORTED ON 12 3/4" C.I.P. PILES.
SINGLE SOLID SHAFT TYPE PIERS SUPPORTED ON 16 3/4" C.I.P. PILES.

AESTHETICS:
LEVEL B MID-LEVEL

EXISTING GROUND PROFILE
22.0' LT. - - - - -
℄ T.H. 25 ———
33.5' RT. — — —

DEPTH OF STRUCTURE:
9'-2" GUTTER TO LOW BRIDGE
96" STEEL PLATE GIRDERS
APPROXIMATE WEIGHT OF STEEL 1,500,000 LBS.

HATCHED AREA TO BE REMOVED UNDER GRADING PORTION OF CONTRACT.

APPROXIMATELY 16678 SQ. FT. OF WATERWAY AREA BELOW EL. 727.7.

INPLACE RIPRAP BELOW EL. 684.0 TO REMAIN.

INPLACE PIER FOOTINGS TO BE REMOVED.

INPLACE PIER PILING TO BE REMOVED TO BOTTOM OF RIPRAP.

ROAD DESIGN UNIT:
MARY DIEKEN 507-389-6033

BRIDGE DESIGN UNIT:
KEITH MOLNAU 651-747-2187

MINNESOTA
DEPARTMENT OF TRANSPORTATION

PRELIMINARY PLAN
BRIDGE NO. 72012

T.H. 25 OVER
THE MINNESOTA RIVER
0.7 MILES NORTH OF C.S.A.H. 6
IN THE TOWN OF BELLE PLAINE

SEC. 31 TWP. 114 N. R. 24 W.
BELLE PLAINE TWP. SIBLEY CO.

DATED: _____

NOT FINAL

BRIDGE ENGINEER

JOB NO. T79373 | MINNESOTA PROJECT NO. BRSTP 7205 (031) | STATE PROJECT NO. 7209-72012 (T.H. 25 = 025) | SHEET NO. 1 OF 12 SHEETS | 72012 | SMK | LMS | RPC | SMK

MNF-2005-1377-JKA Page 3 of 5

PLOTTED/REVISED: 12-JAN-2005 10:19

DISTRICT *: 7 - Mankato/Windom
IPLOT NAME: D720908_erosion1
PATH & FILENAME: S:\Pr\Nh025\7209\08\design\plan\D720908_erosion1.dgn

CLASS 5 RIPRAP TO BE PLACED UNDER BRIDGE PORTION OF THE PLAN

CLASS 4 RIPRAP PLACED UNDER THE GRADING PORTION OF THE PLAN (1)

CLASS 2 RIPRAP TO BE PLACED UNDER THE GRADING PORTION OF THE PLAN (3)

CLASS 1 RIPRAP PLACED OVER THE CLASS 4, TO BE PLACED UNDER THE GRADING PORTION OF THE PLAN (4)

STA. 43+00

TOE OF FILL

P. 24"Ø42'-0" CSP PIPE CULVERT + 2 APRONS
IN. 707.5
OUT. 707.0

EL. 731.0

100'

5' BIT. SHLD

TOE OF FILL

SEE SECTION A-A ON DETAIL SHEET 28.

(5)

TOR-OF-RIVER BANK

TOE OF RIVER BANK

Bodog T3

TOE OF FILL (3)

TOP OF RIVERBANK

(2)

TOE OF RIVERBANK

P. RIPRAP TO EDGE OF BOAT RAMP

EL. 731.0

TOE OF FILL

TOP OF RIVER BANK

TOE OF RIVER BANK

NOTE:
(1) DEPTH SHALL BE 30" OF CLASS V RIPRAP PLACED ON FILTER FABRIC OR 12" GRANULAR FILTER. (SEE SPEC. 2511 AS TO WHEN FABRIC CAN BE USED.)
(2) THE ACCESS ROADS MAY BE TOPPED WITH 12" OF 1.5" ROCK DRIVING SURFACE. SEE DETAIL ON SHEET 32. LOCATION OF ACCESS ROAD TO BE APPROVED BY THE PROJECT ENGINEER.
(3) DEPTH SHALL BE 12" OF CLASS II RIPRAP PLACED ON FILTER FABRIC OR 6" GRANULAR FILTER. (SEE SPEC 2511 AS TO WHEN FABRIC CAN BE USED.
(4) DEPTH OF CLASS I RIPRAP TO BE A MAXIMUM SIZE OF 4". PLACE OVER THE PROPOSED CLASS V RIPRAP IN THE 20' BENCH AREAS.
(5) SEE DETAIL SECTION A-A ON SHEET 28.

CERTIFIED BY Robin Senn — LICENSED PROFESSIONAL ENGINEER — 19888 LIC NO. — 12-JAN-2005 DATE

RIPRAP PLACEMENT DETAIL

STATE PROJ. NO. 7209-08 (T.H. 25) SHEET NO. 20 OF 89 SHEETS

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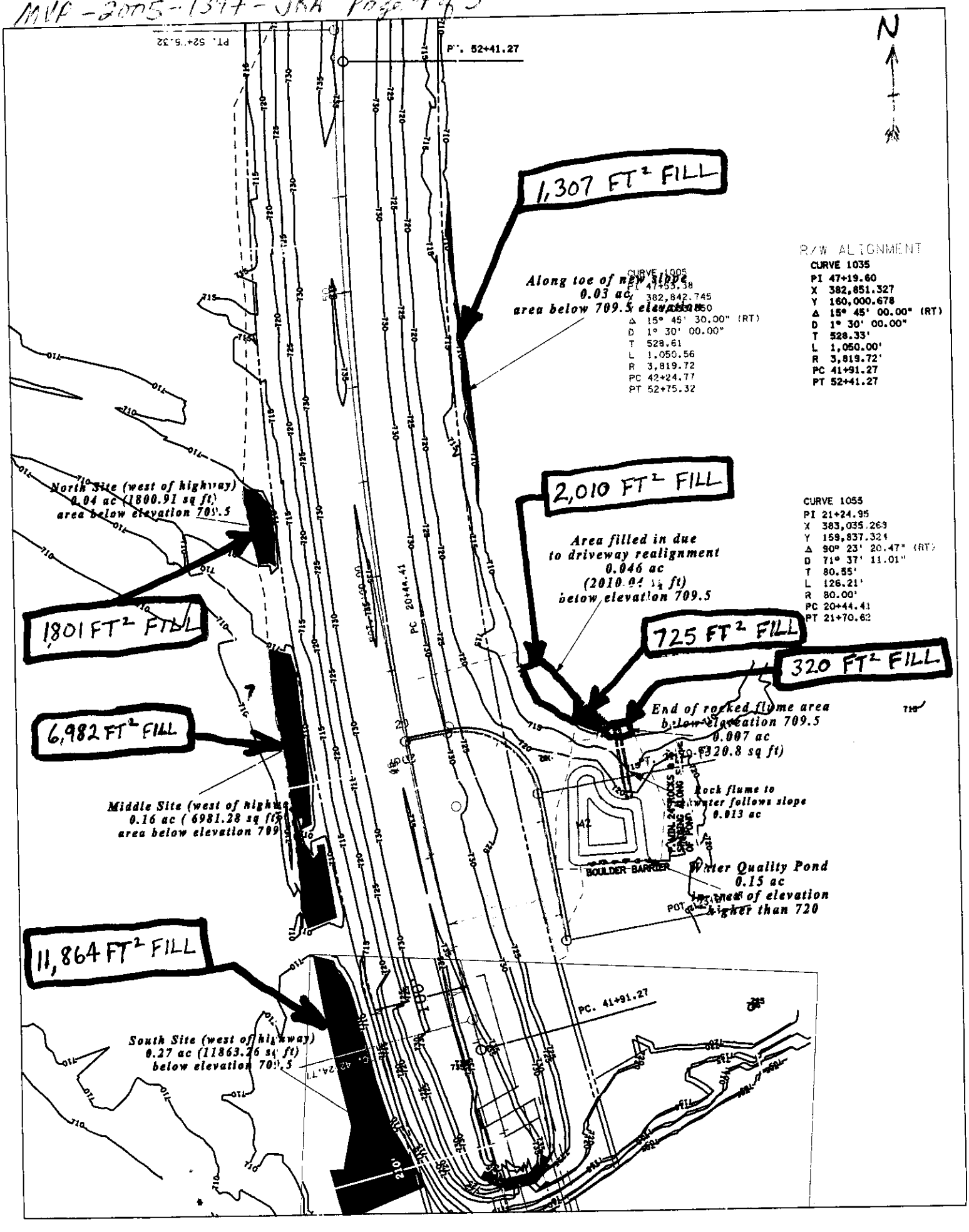

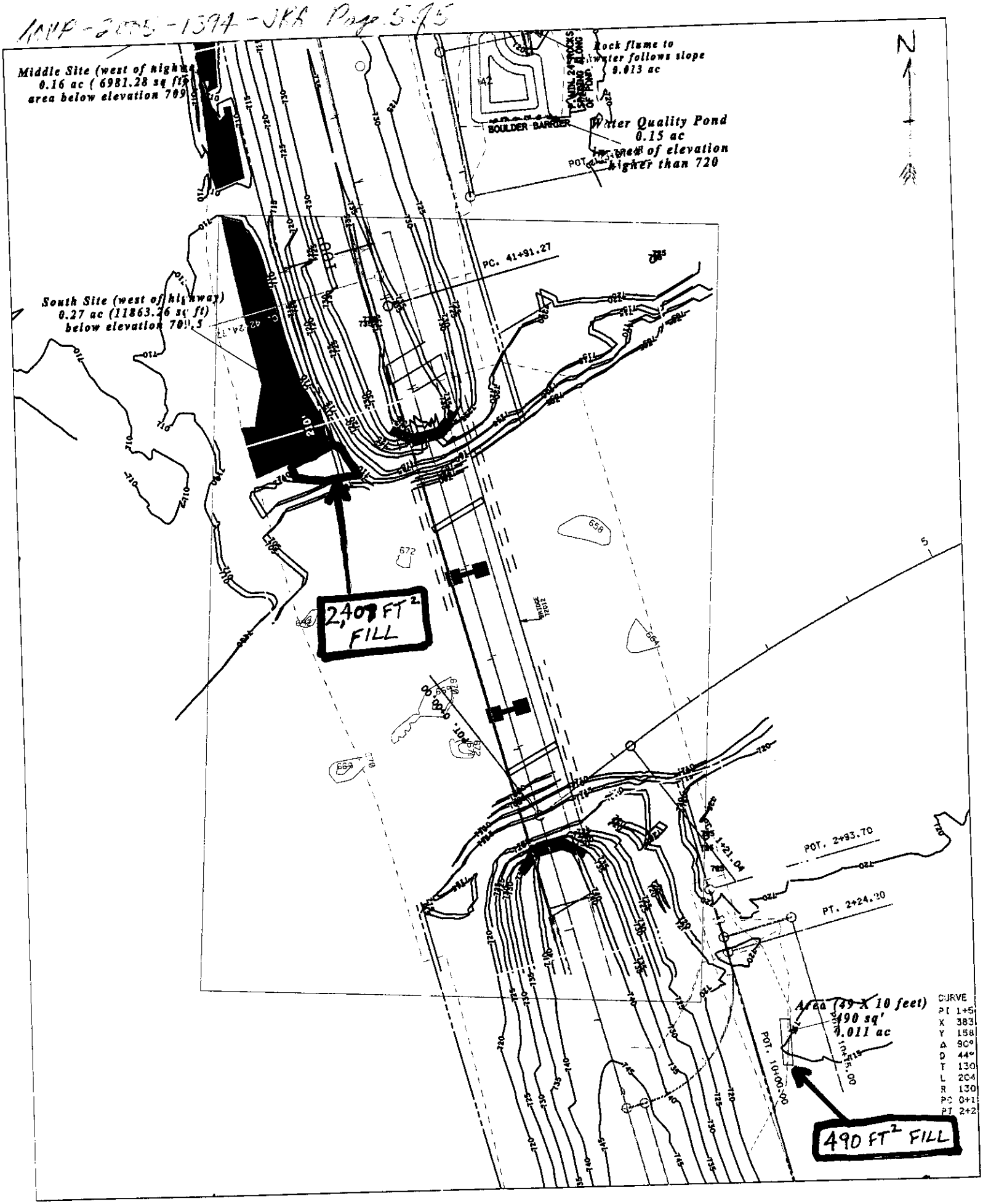
Middle Site (west of highway)
0.16 ac (6981.28 sq ft)
area below elevation 709
Rock flume to
water follows slope
0.013 ac
BOULDER BARRIER
Water Quality Pond
0.15 ac
area of elevation
higher than 720
PC. 41+91.27
South Site (west of highway)
0.27 ac (11863.26 sq ft)
below elevation 70
2,409 FT²
FILL
POT. 2+93.70
PT. 2+24.20
Area (49 X 10 feet)
490 sq'
0.011 ac
POT. 10+00.00
490 FT² FILL
N
CURVE
PI 1+5
X 383
Y 158
Δ 90°
D 44°
T 130
L 204
R 130
PC 0+1
PT 2+2